Modernizing the Grid: Northeast Regional Summit

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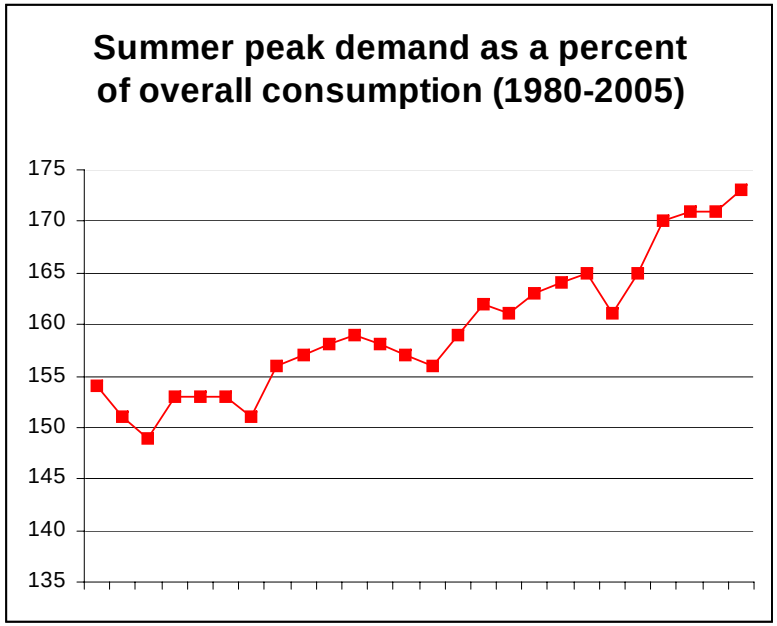
ISO new england

About ISO New England

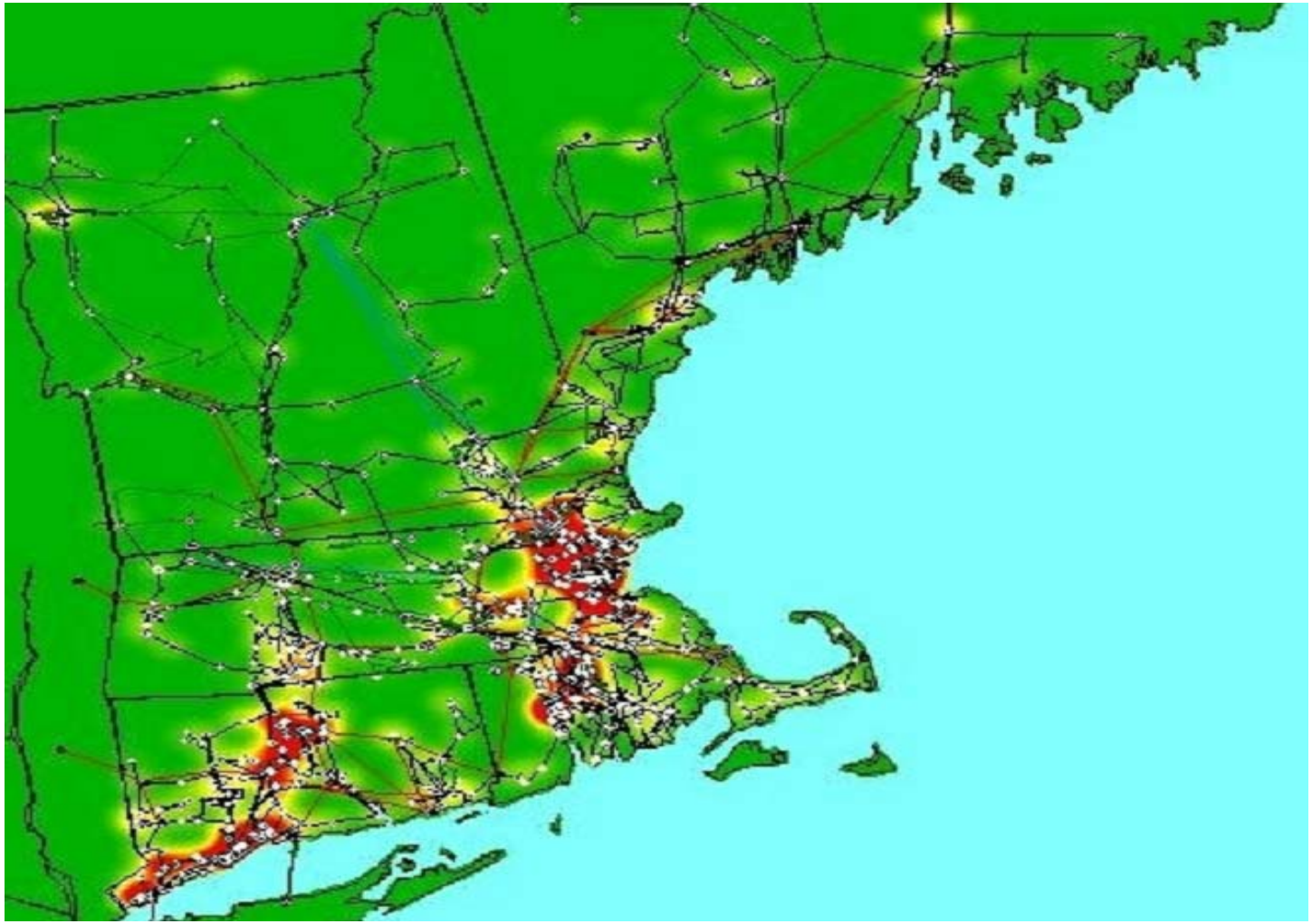
- Regional Transmission Organization
  - Independent of companies doing business in the market
- Responsible for:
  - Real-time bulk power system reliability
  - Administration and oversight of wholesale electricity markets
  - Regional system planning
- Not-for-profit corporation
  - Regulated by Federal Energy Regulatory Commission (FERC)

Why do we need to modernize the grid?

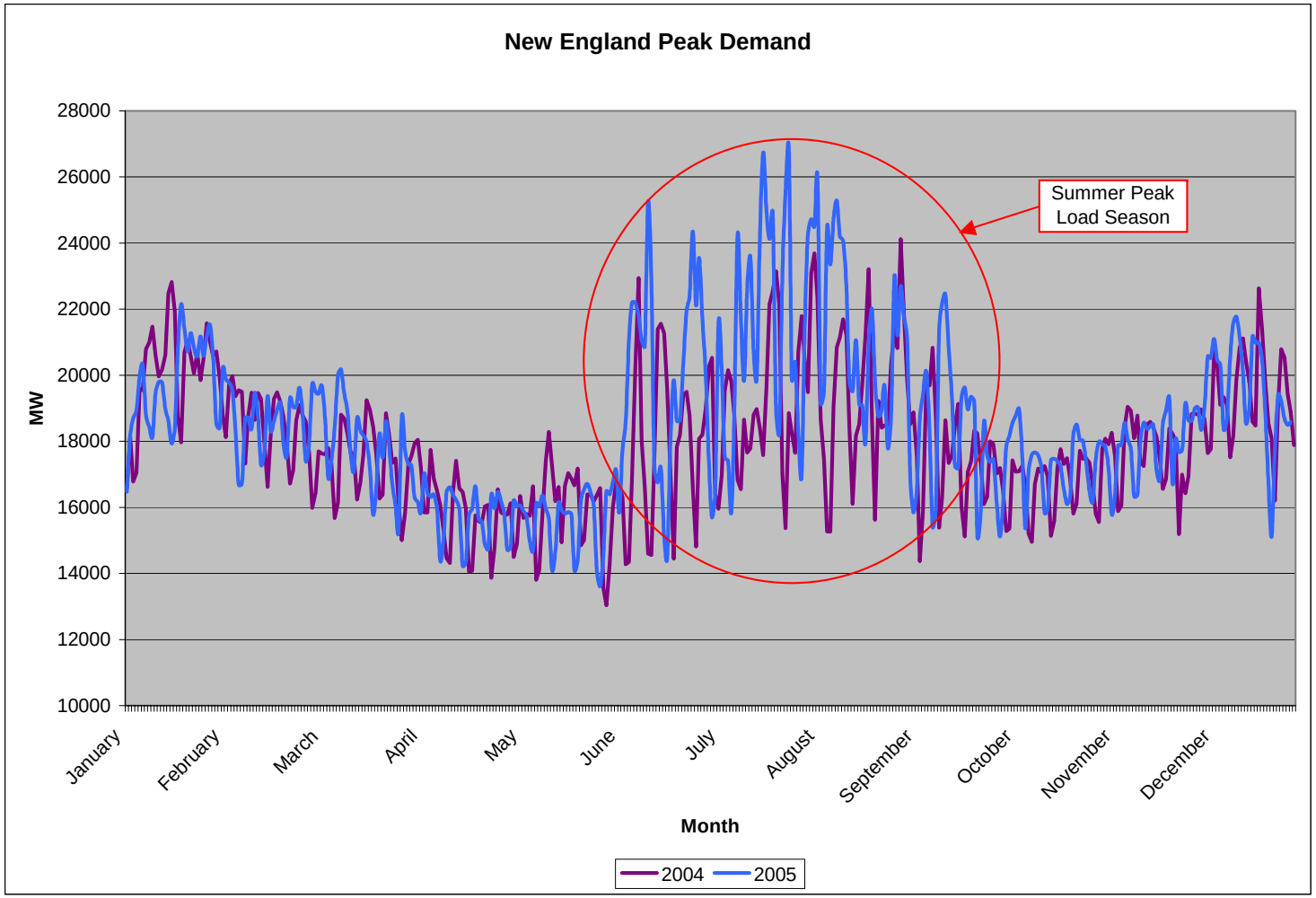
- Increasing peak demand for electricity
- Modern economy requires modern infrastructure
- Need to ensure adequate supplies to major load centers
- We're playing "catch up"
- This isn't Vegas
  - When bad things happen on the system, it gets around *fast*



New England Electricity Demand



Peak Demand Growth is a Challenge

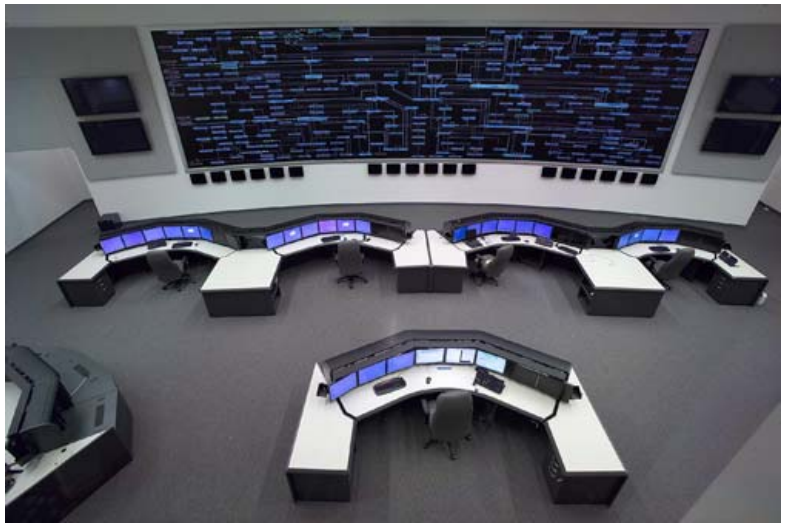


Advanced Monitoring and Control

- Accurate information on transmission topology is critical
  - Inadequate situational awareness contributed to 2003 blackout
- Evaluating existing power system data communication infrastructure and substation controllability
  - Improve reliability of data acquisition
  - Enhance automation
  - Working with TOs to improve the ability of system operators to respond to unplanned events
    - Including the ability to disconnect load at the feeder rotation level
- Enhance visibility of loads on the system
  - Becomes more important with increasing demand-side participation in the wholesale markets

New 21st Century Control Room

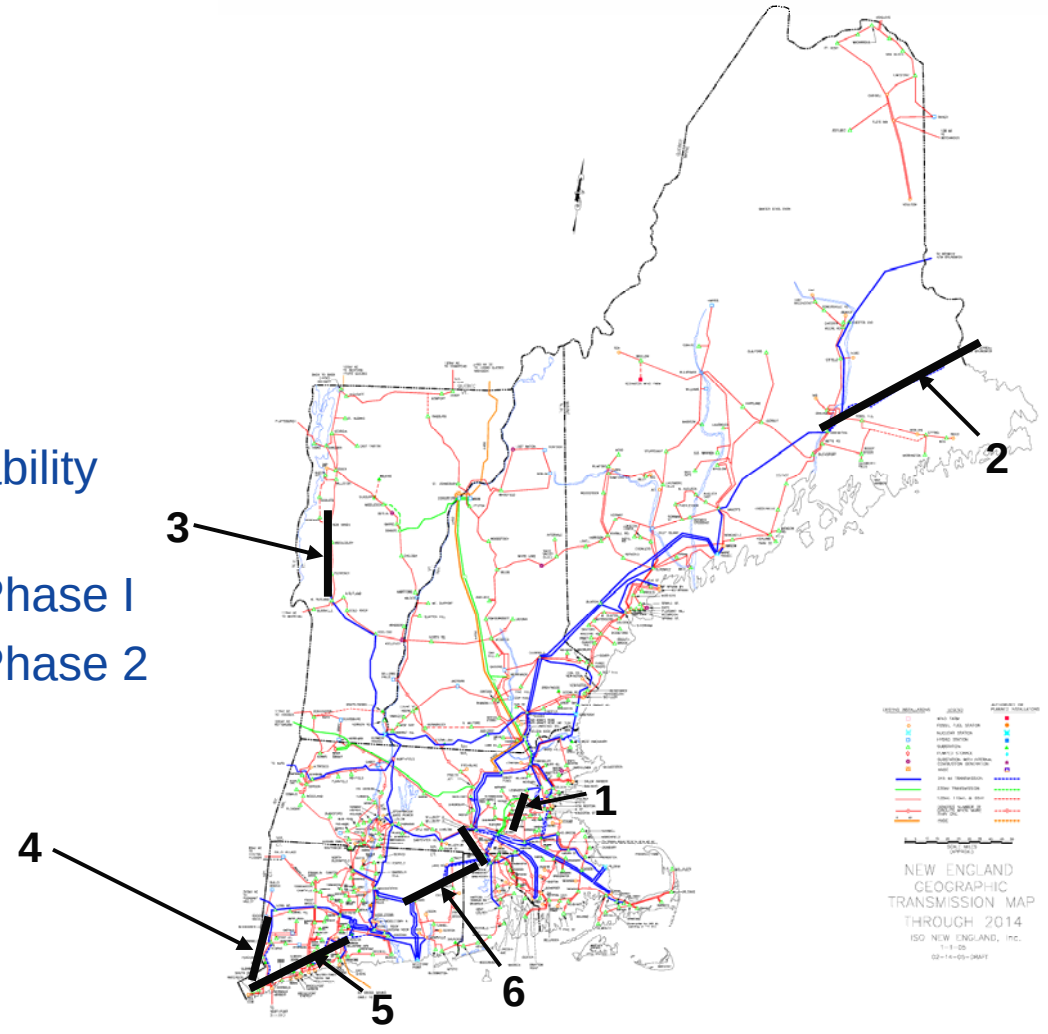
- May 2006 – Switch over to state-of-the-art control room
- Centerpiece is the 12 ft. x 47 ft. dynamic display board
  - Real-time information
- Allows wide-area dynamic view of neighboring operating areas in the Northeast
  - Outcome of 2003 blackout
- New visualization tools for monitoring the health of the power system
  - Dashboard & heartbeat monitor



Major 345 kV Projects in New England

More than $2 billion in transmission investment

1. Boston Import
2. 2nd New Brunswick Tie
3. Northwest Vermont Reliability Project
4. Southwest Connecticut Phase I
5. Southwest Connecticut Phase 2
6. Southern New England Reinforcement



Looking to the Future

- Horizon Year Study
  - Assessment of New England bulk power system in 2016
    - Study extremely high load level (~40,000 MW)
    - Determine whether 115 and 345-kV transmission voltages meet long-term needs
    - Assess need for substation expansion
  - Roadmap for long-term system improvements
- Review of Special Protection Systems
  - Reviewing SPS performance with Transmission Owners

Conclusion

- Major investment needed to keep up with demand
  - Poles and wires
  - Technology to improve controllability
- Challenges for system operators will continue
  - Unforeseen events are inevitable
  - Training must be continuous